

Amendments to the Claims

This listing of claims replaces all prior versions, and listings, of the claims in the application.

Listing of Claims:

Claims 1-518 (Canceled)

519. (New) A kit comprising:

a probe molecule for use in determining the presence of a target nucleic acid sequence in a sample, the probe comprising complementary first and second base regions that form a hybrid containing at least one ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety, wherein the probe forms a stable complex with the target nucleic acid sequence but not with a non-targeted nucleic acid under nucleic acid assay conditions, such that the target nucleic acid sequence can be detected, and wherein the complex comprises a single-stranded form of the probe; and

a solid support for immobilizing the target nucleic acid sequence so that unbound nucleic acids and other components of the sample can be removed from the target nucleic acid sequence.

520. (New) The kit of claim 519, wherein the solid support has a magnetic charge.

521. (New) The kit of claim 519 further comprising:

a nucleic acid polymerase;

nucleotide triphosphates; and

an amplification oligonucleotide which, in the presence of a nucleic acid analyte and under amplification conditions, is extended to form part of a nucleic acid extension product containing the target nucleic acid sequence or directs the synthesis of a nucleic acid transcription product containing the target nucleic acid sequence.

522. (New) The kit of claim 519, wherein the first base region contains at least one ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety, and wherein the first base region complexes with the target nucleic acid sequence under the nucleic acid assay conditions.

523. (New) The kit of claim 519, wherein that portion of the first base region which hybridizes to the second base region includes a cluster of at least about 4 ribonucleotides modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety.

524. (New) The kit of claim 523, wherein the first base region complexes with the target nucleic acid sequence under the nucleic acid assay conditions.

525. (New) The kit of claim 519, wherein that portion of the first base region which hybridizes to the second base region includes at least one nucleotide which is not a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety.

526. (New) The kit of claim 525, wherein the first base region complexes with the target nucleic acid sequence under the nucleic acid assay conditions.

527. (New) The kit of claim 519, wherein each nucleotide of that portion of the first base region which hybridizes to the second base region is a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety.

528. (New) The kit of claim 527, wherein the first base region complexes with the target nucleic acid sequence under the nucleic acid assay conditions.

529. (New) The kit of claim 519, wherein each nucleotide of the probe is a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety.

530. (New) The kit of claim 519, wherein the first and second base regions form a hybrid that is more stable than a hybrid formed between unmodified forms of the first and second base regions.

531. (New) The kit of claim 519, wherein the probe includes a conjugate molecule.

532. (New) The kit of claim 523, wherein the probe includes a conjugate molecule joined to the probe at a site located within the cluster of the first base region.

533. (New) The kit of claim 519, wherein the first and second base regions are contained within an oligonucleotide that is between 10 and 100 bases in length.

534. (New) The kit of claim 519, wherein the probe comprises a detectable label.

535. (New) The kit of claim 534, wherein the detectable label comprises a fluorescent molecule.

536. (New) The kit of claim 519, wherein the nucleic acid analyte comprises RNA.

537. (New) The kit of claim 536, wherein the RNA is ribosomal RNA.

538. (New) The kit of claim 536, wherein a target sequence contained within the target nucleic acid includes a double-stranded region.

539. (New) The kit of claim 519, wherein the 2'-O-alkyl substitution to the ribofuranosyl moiety is a 2'-O-methyl substitution.

540. (New) A reaction mixture comprising:

one or more amplification oligonucleotides in the presence of at least one nucleic acid polymerase and nucleotide triphosphates sufficient to form a nucleic acid amplification product; and

a probe molecule comprising first and second base regions hybridized to each other and having at least one ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety, wherein the probe forms a stable and detectable complex with the amplification product but not with non-target nucleic acid, and wherein the complex comprises a single-stranded form of the probe.

541. (New) The reaction mixture of claim 540, wherein the one or more amplification oligonucleotides and the probe are present in the reaction mixture when the amplification reaction is initiated.

542. (New) The reaction mixture of claim 540, wherein the first base region contains at least one ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety, and wherein the first base region complexes with the target nucleic acid sequence under the nucleic acid assay conditions.

543. (New) The reaction mixture of claim 540, wherein that portion of the first base region which hybridizes to the second base region includes a cluster of at least about 4 ribonucleotides modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety.

544. (New) The reaction mixture of claim 543, wherein the first base region complexes with the target nucleic acid sequence under the nucleic acid assay conditions.

545. (New) The reaction mixture of claim 540, wherein that portion of the first base region which hybridizes to the second base region includes at least one nucleotide which is not a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety.

546. (New) The reaction mixture of claim 545, wherein the first base region complexes with the target nucleic acid sequence under the nucleic acid assay conditions.

547. (New) The reaction mixture of claim 540, wherein each nucleotide of that portion of the first base region which hybridizes to the second base region is a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety.

548. (New) The reaction mixture of claim 547, wherein the first base region complexes with the target nucleic acid sequence under the nucleic acid assay conditions.

549. (New) The reaction mixture of claim 540, wherein each nucleotide of the probe is a ribonucleotide modified to include a 2'-O-alkyl substitution to the ribofuranosyl moiety.

550. (New) The reaction mixture of claim 540, wherein the first and second base regions form a hybrid that is more stable than a hybrid formed between unmodified forms of the first and second base regions.

551. (New) The reaction mixture of claim 540, wherein the probe includes a conjugate molecule.

552. (New) The reaction mixture of claim 543, wherein the probe includes a conjugate molecule joined to the probe at a site located within the cluster of the first base region.

553. (New) The reaction mixture of claim 540, wherein the first and second base regions are contained within an oligonucleotide that is between 10 and 100 bases in length.

554. (New) The reaction mixture of claim 540, wherein the probe comprises a detectable label.

555. (New) The reaction mixture of claim 554, wherein the detectable label comprises a fluorescent molecule.

556. (New) The reaction mixture of claim 540, wherein the nucleic acid analyte comprises RNA.

557. (New) The reaction mixture of claim 556, wherein the RNA is ribosomal RNA.

558. (New) The reaction mixture of claim 556, wherein a target sequence contained within the target nucleic acid includes a double-stranded region.

559. (New) The reaction mixture of claim 540, wherein the 2'-O-alkyl substitution to the ribofuranosyl moiety is a 2'-O-methyl substitution.